

WHAT IS CLAIMED:

1. An isolated DNA molecule from an *Aquifex* species encoding a delta prime subunit of a DNA polymerase III-type enzyme, the isolated DNA molecule either:
 - (i) comprising a nucleotide sequence of SEQ ID NO: 125;
 - (ii) encoding an amino acid sequence of SEQ ID NO: 126; or
 - (iii) hybridizing to the complement of SEQ ID NO: 125 under hybridization conditions comprising at most about 0.9M sodium citrate buffer at a temperature of at least about 37°C.
2. The isolated DNA molecule according to claim 1, wherein the *Aquifex* species is *Aquifex aeolicus*.
3. The isolated DNA molecule according to claim 1, wherein the DNA molecule encodes an amino acid sequence of SEQ ID NO: 126.
4. The isolated DNA molecule according to claim 1, wherein the DNA molecule comprises a nucleotide sequence of SEQ ID NO: 125.
5. The isolated DNA molecule according to claim 1, wherein the DNA molecule hybridizes to the complement of SEQ ID NO: 125 under hybridization conditions comprising at most about 0.9M sodium citrate buffer at a temperature of at least about 37°C.
6. An expression system comprising an expression vector into which is inserted a heterologous DNA molecule according to claim 1.
7. A host cell comprising a heterologous DNA molecule according to claim 1.
8. A method of producing a recombinant thermostable delta prime subunit of a DNA polymerase III-type enzyme from an *Aquifex* species, said method comprising:

transforming a host cell with the heterologous DNA molecule according to claim 1 under conditions suitable for expression of the delta prime subunit, and

isolating the delta prime subunit.

9 An isolated DNA molecule from *Aquifex aeolicus* encoding a delta prime subunit of a DNA polymerase III enzyme, wherein the delta prime subunit is capable of forming a portion of a clamp loader that can cooperate with a DNA polymerase to form a DNA polymerase III-like particle.